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(54) Title: AUTHENTICATING AN AUTHENTIC ARTICLE USING SPECTRAL IMAGING AND ANALYSIS

(57) **Abstract:** Authenticating an authentic article having an authentication mark. Acquiring a set of spectral images of the authentication mark, for forming a set of single-authentication mark spectral fingerprint data (FIG. 1). Identifying at least one spectral shift in the set of single-authentication mark spectral fingerprint data, for forming an intra-authentication mark physicochemical region group including sub-sets of intra-authentication mark spectral fingerprint pattern data, such that data elements in each sub-set are shifted relative to corresponding data elements in remaining sub-sets in the same intra-authentication mark physicochemical region group (FIG. 2). Forming a set of intra-authentication mark physicochemical properties and characteristics data relating to the imaged authentication mark, by performing pattern recognition and classification analysis on the intra-authentication mark physicochemical region group (FIG. 3). Comparing and matching elements in the set of intra-authentication mark physicochemical properties and characteristics data to corresponding reference elements in reference set of data, thereby authenticating the authentic article.



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